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Lea-Cathrin Dohme, Gordon A. Bloom, David Piggott, Susan H. Backhouse

Institutions: Cardiff Metropolitan University, McGill University, Leeds Beckett University

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Development, Implementation, and Evaluation of an Athlete-Informed Mental Skills Training Program for Elite Youth Tennis Players

Lea-Cathrin Dohme[a], Gordon A. Bloom[a], David Piggott[b], and Susan Backhouse[b]

[a] *Department of Kinesiology and Physical Education, McGill University, Montreal, Canada*

[b]*Institute of Sport, Physical Activity and Leisure, Leeds Beckett University, Leeds, United Kingdom*

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Abstract

Informed by athletes' psychological needs, the current qualitative study developed, implemented, and evaluated a 15-month mental skills training (MST) program for elite youth athletes. The MST was divided into three phases that included a nine-month pre-intervention, a two-month intervention, and a four-month evaluation phase. The intervention consisted of three interactive workshops which were delivered to 11 competitive British youth tennis players (aged 8 to 15 years) and their coach (age = 34). The intervention was informed by data that was collected throughout a nine-month pre-intervention phase including longitudinal observations, field notes, and semi-structured interviews. The intervention was evaluated over a four-month period through observations, field notes, athlete-workshop data, and a semi-structured interview with the coach. Results reinforced the value of the longitudinal pre-intervention phase by highlighting that the establishment of rapport between the researcher and athletes enhanced the meaningfulness and content of the MST program. Additionally, an increase in athletes' use and regulation of PSCs was identified as a result of athletes' improved understanding of psychological skills (i.e., self-talk, imagery, performance routines) and characteristics (i.e., focus, emotional control) (PSCs). Finally, the MST program fostered a shared subject specific language between athletes and their coach, enhancing the openness and frequency with which PSCs were talked about. Practical guidelines for future sport psychology interventions with youth athletes and their coaches are provided.

Lay Summary: A 15-month mental skills training program was conducted with youth tennis players to enhance their ability to regulate their focus and emotional control. Practical guidelines for future interventions with youth athletes and their coaches are provided.

Keywords: talent development; youth sport; psychological skills training; qualitative methods.

Development, Implementation, and Evaluation of an Athlete-Informed Mental Skills Training Program for Elite Youth Tennis Players

A plethora of research has attested to the important role of mental skills training (MST) for elite athletic performance (Gould & Maynard, 2009; Hardy et al., 2017). Despite pleas from Vealey (1988) and Côté, Lidor, and Hackfort (2009) about the value and importance of MST with youth athletes, the majority of MST research has focused on elite adult athletes. This is unfortunate since well-developed psychological skills (i.e., athletes' ability to use learned methods to regulate their psychological characteristics) and characteristics (i.e., trait-like dispositions which, despite being relatively stable, can be regulated through the use of psychological skills) can enhance young athletes' likelihood of fulfilling their athletic and personal potential (Dohme, Backhouse, Piggott, & Morgan, 2017; MacNamara, Button, & Collins, 2010). For example, young athletes face many challenges and stressors throughout adolescence such as coping with losses, injuries, balancing sport, school, and their social life, as well as selection and deselection from teams (Larsen, Alfermann, & Christensen, 2012). Experts have suggested that youth athletes with well-developed psychological skills and characteristics (PSCs) are better placed to negotiate these challenges and stressors (Henriksen, Stambulova, & Roessler, 2010), and potentially avoid early drop out or burnout (Gould & Carson, 2008).

Recently, a growing number of studies have started to investigate the effects of MST on elite youth athletes (e.g., Fortes et al., 2018; Fournier, Calmels, Durand-Bush, & Salmela, 2005; Ong & Griva, 2017; Sharp, Woodcock, Holland, Cumming, & Duda, 2013). For example, Fournier et al. (2005) evaluated the effects of a 10-month MST program on the performance of 10 nationally ranked youth female gymnasts (M_{age} = 12). The MST program consisted of 25 half hour sessions that targeted the development of relaxation, self-talk, goal-setting, focusing, and visualization skills. The results indicated that athletes' performance on the vault, bars, beam, and

floor improved throughout the MST program. In addition to performance improvements, MST with elite youth athletes can also enhance athletes' knowledge of and ability to use psychological skills. For instance, Sharp et al. (2013) conducted a MST program with 21 Scottish elite male rugby players (M_{age} = 15). The program consisted of nine one-hour sessions that were delivered over a six-month period and taught players psychological skills such as goal setting, self-talk, arousal control, imagery, and pre-competition routines. Focus groups with the athletes and four coaches suggested that the MST program increased athletes' knowledge of psychological skills, aided team cohesion, and increased athletes' openness, honesty, and self-regulation. Collectively, these empirical studies indicate that MST programs can enhance youth athletes' performance and psychological development, although some limitations in the research exist.

For instance, few studies exist that were informed by athletes' psychological needs rather than the content of sport psychology literature. Experts such as Henriksen, Larsen, Storm, and Ryom (2014) have suggested that youth athletes and their immediate others (e.g., parents or coaches) should be consulted prior to developing and implementing MST programs to fully grasp athletes' specific psychological needs. Second, qualitative research methods have rarely been used to evaluate MST programs in youth sport. Although quantitative research methods have revealed that MST programs can positively affect youth athletes' performances, qualitative research strategies could further our understanding of youth athletes' experiences and perceptions of MST programs by offering insight into what, how, and why athletes learned (Sparkes & Smith, 2014). Third, sport participation has long been understood as a means for youth and adolescents to develop fundamental psychosocial characteristics such as self-confidence, interpersonal competencies, and emotional control (Côté, Bruner, Erickson, Strachan, & Fraser-Thomas, 2010; Pierce, Kendellen, Camiré, & Gould, 2018), yet most MST programs have been focused on the improvement and measurement of youth athletes' athletic

performance. Future MST programs should aim to facilitate both youth athletes' athletic as well as psychosocial development. Finally, some authors offered limited insight into the content of their MST programs for youth sport athletes resulting in a lack of clear description of the content of these types of programs (Visek, Harris, & Blom, 2009). To gain insight into guiding principles for youth athlete MST programs, it is necessary to examine the reflective accounts of sport psychology practitioners who have shared their experiences working with youth athletes (e.g., Foster, Maynard, Butt, & Hays, 2016; Howells, 2017). For instance, after interviewing 12 experienced sport psychology practitioners from the United Kingdom, Foster et al. (2016) found that practitioners employed various strategies to adapt their consultation practices to the needs of youth sport participants, including the use of role-modelling and comparative narratives. Along the same line, Howells (2017) offered recommendations following consultation sessions with a nine-year-old gymnast over a 24-week period, including (1) simplifying complex information, (2) making MST fun by including enthusiasm and patience and avoiding dry and factual information, (3) individualizing content by considering athletes' unique characteristics, and (4) offering relevant practical examples, as well as appropriate content and delivery mediums such as technological aids. These recommendations are important to consider as experts suggested that youth athletes constitute a distinct challenge for sport psychology practitioners due to their level of cognitive development (Gould & Nalepa, 2016; Kipp, 2018). More precisely, McCarthy, Jones, Harwood, and Olivier (2010) concluded that younger athletes between the ages of 10-15 held different understandings of PSCs compared to more mature athletes.

Taken together, youth athletes are now perceived as a growing and special client base for sport psychology practitioners (Henriksen et al., 2014). Despite this, a paucity of empirical research exists that examines the effects of MST programs on youth athletes' understanding of psychological concepts, as well as their ability to use psychological skills to regulate or enhance

their performance and personal development. Moreover, MST programs are not commonly informed by athletes' needs and are evaluated through quantitative research methods. As such, the purpose of this study was twofold. First, the study aimed to develop and implement a MST program for elite youth athletes that was informed by athletes' psychological needs. Second, the study aimed to evaluate the MST program by investigating if, how, and what mental skills athletes learned through qualitative research methods.

Methods

The study was underpinned by critical realism, a philosophical paradigm that allows for the in-depth exploration of social phenomena, and the epistemology of reduction, a cyclical research process that aims to bring researchers as close as possible to the reality of the studied phenomena (Pawson & Tilley, 1997). Action research is one method used within critical realism that reflects the nature of reduction. It has been defined as "a form of collective self-reflective enquiry undertaken by participants in social situations in order to improve the rationality and justice of their own social or educational practices, as well as their understanding of these practices and the situations in which these practices are carried out" (Kemmis & McTaggart, 1988, pp. 5-6). Subsequently, a 15-month action research study that included the development, implementation, and evaluation of three MST workshops for competitive youth tennis players and their coach took place. Action research purports an in-depth familiarization with an environment before any action is taken (McNiff, 2013). This action is often planned through a collaborative effort of several individuals and includes the identification of a problem, planning of action steps to solve (or clarify) the problem, implementation of these steps, and evaluation of the intervention (McNiff, 2013). The interactive nature of the process enables individuals to learn from each other, which facilitates the understanding of complex situations from several perspectives (McNiff, 2013). The current 15-month action research study was divided into three

phases (a nine-month pre-intervention, a two-month intervention, and a four-month evaluation phase) that involve a cycle of planning, acting, monitoring, reflecting, and evaluating (Evans, Hardy, & Fleming, 2000).

Participants

One private English tennis club that specifically focused on the athletic development of young tennis players was chosen for this longitudinal study (Sparkes & Smith, 2014). In total, 170 (120 male and 50 female) athletes, ranging from 3-15 years of age, trained regularly in the tennis club. From these 170 athletes, 11 British male players were classified as elite because of their ranking in the top 15 of their respective age groups in the country. According to guidelines from the Lawn Tennis Association, the 11 players were divided into two age-specific performance groups (A1 = ages 8-11; A2 = ages 12-15). The groups included two sets of brothers. Of these four athletes, one was part of group A1 and three were in group A2. At the time of the study, players engaged in approximately nine hours of structured training each week at the club. None of the athletes had been exposed to a formal MST program prior to the current workshops.

The head coach of these athletes played an important role in the MST intervention. The coach was a 34-year-old British male with 18 years of coaching experience, who held a Lawn Tennis Association (LTA) Level 3 coaching qualification. He started to play tennis at the age of three, went through an extensive talent development process himself, and represented his county from the age of 10 to 18. He started to coach full-time at the club after completing an undergraduate degree in Town and Country Planning at an English university. Apart from participating in a four-hour workshop called “Coaching Kids for Self-Belief” that was offered by the LTA as part of coaches’ continuous personal development, the coach had no previous experience of formal sport psychology education.

To help inform the intervention, 15 parents (P_{1-15}, M_{age} = 48, SD = 6.16) were also part of the study. Apart from three instances in which only one parent per athlete participated, both mother and father of each athlete were included in the study. In total, this sample consisted of seven fathers and eight mothers. All parents were British except for two who were Polish.

Procedure

Ethical approval was granted by the university's ethics committee. Following this, the coach of the tennis club was contacted since he agreed to serve as the gatekeeper for this study. Consequently, the coach informed the athletes and their parents about the purpose of the study. Eleven athletes collected an information and consent form package from the coach that included parent and athlete information sheets, as well as parent consent and athlete assent forms. All eleven athletes returned the signed consent and assent forms, and were subsequently included in the intervention.

Data Collection

Given that qualitative research is a subjective process in which researchers bring their own history, assumptions, values, and perspectives, it is important to offer a brief description of the main researcher's background and experiences, as well as the role and experiences of the co-authors (Braun & Clarke, 2013). The lead researcher was born and raised in Germany and had extensive tennis experience, competing nationally from the age of four to 20 and being a qualified Level 3 tennis coach. She was confident applying sport psychology principles to the sport of tennis given her experiences as a player and coach, postgraduate studies in sport psychology, and leadership of international coach and athlete education programs that were informed and evaluated through qualitative research methods. These experiences enhanced her ability to communicate technically with the coach, athletes, and parents, and to develop a MST program that offered relevant examples and sport specific MST drills. In addition, each data

collection phase was supported by three co-authors, all of whom have extensive experience working in youth sport settings. Specifically, the first co-author is a Certified Mental Performance Consultant with the Canadian Sport Psychology Association and a Certified Youth Sport Coach within the Coaching Association of Canada. The second co-author is a Certified Level 3 Basketball Coach and renowned coach educator, and the third co-author is a Chartered Sport and Exercise Psychologist with the British Psychological Society and Health and Care Professions Council.

Pre-Intervention Phase (9 months). In line with action research protocols (McNiff, 2013), the objective of the pre-intervention phase was to develop an in-depth understanding of players' psychological needs through a collaborative and reflective effort of athletes' parents, coach, and the researcher. This process sought to inform the development and implementation of an intervention that would address athletes' psychological needs.

To achieve these objectives qualitative research methods were employed as these enable researchers to understand individuals' lived experiences from several perspectives through observations and sustained dialogues (i.e., member reflection; Smith & McGannon, 2018), thus providing rich and holistic insights into athletes' experiences, needs, and interests (Braun & Clarke, 2013). Subsequently, the first author spent Wednesday and Thursday afternoons in the researched environment for a period of nine months prior to the commencement of the MST program. During this time, she engaged in two observation approaches, namely 'participant-as-observer' and 'observer-as-participant' (Sparkes & Smith, 2014). For the first four months of the pre-intervention phase, the researcher adapted the role of a participant-as-observer to immerse herself in the researched environment and forge authentic relationships with participants. While being a participant-as-observer, the researcher got actively involved in the researched environment by taking on the role of a hitting partner or player of the group. According to

Sparkes and Smith (2014), the "advantage of this type of observation is the ease with which the researcher-participant relationships can be forged" (p. 101). Despite this, the method limited the researcher's ability to take detailed field notes, make fully conscious observations, and engage participants in sustained dialogues. As a result, she adopted an observer-as-participant approach for the final five months of the pre-intervention phase. During this time, the researcher's active involvement in the training sessions was minimal; allowing her to ask questions, probe participants' thinking, take detailed field notes, and move around the research environment more freely, while still being accepted as part of the group (Sparkes & Smith, 2014). Additionally, this approach allowed the researcher to engage participants in reflective conversations that clarified or expanded upon already collected data (Carr & Kemmis, 1988; Smith & McGannon, 2018). During the pre-intervention phase, the researcher spent a total of 172.5 hours in the researched club and 13 hours at two athlete tournaments. In total, 87 pages of field notes were collected.

To enrich the observational data that was to inform the athlete MST program, data were also collected through semi-structured interviews with all 15 parents and the coach during the final five months of the pre-intervention phase[1]. All interviews were audio recorded and transcribed, lasted approximately 70 minutes, and ranged from 53 to 109 minutes. Although the parents and coach's interview guides differed slightly, both consisted of open-ended questions that required parents and the coach to elaborate on their (a) understanding of sport psychology (e.g., How would you describe sport psychology?), (b) approach to PSCs development (e.g., Do you engage in any specific behaviours to develop your child(ren)/athletes mentally?), and (c) challenges of youth athletes' psychological development (e.g., Have you ever experienced challenges when trying to develop your child(ren)/athlete mentally?). In total, 485 pages of

[1] Interview guides are available upon request by contacting the corresponding author at LDohme@cariffmet.ac.uk.

interview transcripts were collected and stored using the computer software NVivo10. Along with the observational data, this information provided a foundation upon which the content of MST program could be developed.

Intervention Phase (2 months). The objective of the intervention phase was to enhance athletes' psychological characteristics identified as improvement worthy during the pre-intervention phase. To do so, athletes were provided with a MST program that was guided by a cognitive-behavioural consultancy approach (cf. Mace, 1990). This approach helped teach athletes that their thoughts and feelings positively and negatively affected their performance, and that these emotions and thoughts could be challenged, intervened, and controlled using psychological skills, such as pre-performance routines and positive self-talk.

During the MST program, athletes engaged in various tasks that offered insight into their understanding of psychological concepts. To explore this understanding and facilitate the evaluation of the program through data collection, the workshops were video recorded and program workbooks photocopied after the completion of the intervention phase. In addition, anonymous feedback from the athletes about the MST program was collected on post-it notes after every workshop. On these notes, athletes outlined what they liked and disliked about the workshop and described something they had learned and then implemented during the on-court activities. The feedback was used to enhance forthcoming workshops.

Evaluation Phase (4 months). The objective of the evaluation phase was to identify if, what, and how athletes learned during the intervention phase. Several data sources were used to achieve this objective including athlete-workshop data, observations, field notes, and a semi-structured interview with the coach. More specifically, the first author spent an additional 40 hours over a four-month period in the researched environment following the workshops to monitor, reflect, and evaluate the effects of the intervention (Evans et al., 2000). During this

time, she adapted an observer-as-participant approach, whereby her active involvement in the training sessions was minimal. This allowed the researcher to make detailed observations and engage athletes, parents, and the coach frequently in informal, yet sometimes critical reflections about the effects of the intervention (Sparkes & Smith, 2014). In total, 34 pages of field notes were collected. In addition, a 60-minute semi-structured interview was conducted with the coach that aimed to elicit information about athletes' learning and the coach's perception of the workshops. Questions such as "What was your general impression of the workshops?", "Why do you feel that the workshops were appropriate for the athletes?", "What do you think athletes learned from the workshops?", "What elements of the workshops do you think helped the athletes to learn these things?", and "Have you noticed a change in athletes' behaviours?", were asked. Follow-up probes allowed the researcher to gain a detailed understanding of the coach's answers (e.g., "Can you give me an example of this?" or "What does this look like in practice?"). In total, 12 pages of interview transcripts were collected and stored using the computer software NVivo10.

Data Analysis

Inductive thematic analysis was used to analyse all data sets, which included the field notes from participant observations, athlete-workshop data, and semi-structured interviews (Braun & Clarke, 2013). Thematic analysis allows for the synthesis and organization of large amounts of data that explores psychological and social phenomena (Braun & Clarke, 2013). In addition, it offers rich descriptions of the data collected by identifying, analysing, interpreting, and reporting common patterns or themes that emerge from the data (Sparkes & Smith, 2014). Drawing on Braun and Clarke's (2013) thematic analysis guidelines, a six-step data analysis process was applied. This included (1) familiarization with the data; (2) generating initial codes; (3) searching for and identifying themes; (4) reviewing themes; (5) defining and naming themes;

and (6) writing the report. More specifically, the first author began the data analysis process by listening to and reading the data until she felt truly immersed in it. After familiarization with the data was established, the researcher started to organize the data extracts into segments that encompassed the same or similar pieces of information. A code was then assigned to each segment. The third and fourth phase of the thematic analysis process were conducted simultaneously. First, the researcher set out to identify themes across the established codes. The themes were reviewed through peer reflection and critical friends (Smith & McGannon, 2018). More insight into this process is given in the "Quality Standards" section. Phases five and six of the thematic analysis are outlined in the results section.

Quality Standards

Several methods were implemented to help ensure the rigor, authenticity, and trustworthiness of the data collection and analysis process. First, to facilitate an in-depth familiarization with the researched context, the first author embedded herself into the environment for a total of 15 months (Smith & Sparkes, 2014). This allowed for authentic, trusting relationships between the participants and herself to be forged. Second, the prolonged immersion allowed for sustained dialogue with the participants. During this process 'member reflection' was engaged in, which led to additional data being collected and other data being discussed (Smith & McGannon, 2018). For instance, the researcher would frequently engage participants in informal conversations to explore and clarify the interpretation of findings to guard against any biases unduly influencing this process. According to Smith and McGannon (2018), this process produces rigorous qualitative research as it facilitates a robust and intellectually enriched understanding through the generation of additional insight. Third, rich data sets were collected through a variation of data collection methods (i.e., observations, field notes, and interviews) and participants (i.e., parents, athletes, and coaches) (Sparkes & Smith,

2014). Finally, the researcher was immersed in a vibrant and interdisciplinary research community consisting of academics working in disciplines such as coaching, youth sport development, and sport psychology. Consequently, the researcher was surrounded by a host of 'critical friends', affording her the opportunity to critically discuss and reflect upon her findings, potential biases, and research processes on a weekly basis (Smith & McGannon, 2018).

Results

A 15-month action research study was conducted that included a pre-intervention (i.e., identification of a problem and planning of action steps to solve the problem), intervention (i.e., implementation of action steps), and evaluation (i.e., evaluation of the intervention) phase. This section begins by offering insight into the themes that emerged from the nine-month pre-intervention phase, including how these informed the content of the two-month intervention phase. This is followed by a brief overview of the intervention's content. The section concludes by presenting the themes that emanated from the four-month evaluation phase. Pseudonyms are used throughout the results to ensure participants' anonymity. To identify participants, athletes aged 8-11 are marked as A1s, athletes aged 12-15 as A2s, and parents with the letter P.

Pre-Intervention Phase: Building Rapport and Identifying Athletes' Psychological Needs

Action researchers seek to develop an in-depth understanding of an environment before manipulating and adjusting some of its key features in order to bring about positive change (McNiff, 2013). To allow for an in-depth understanding to be developed, it is important that researchers establish an authentic relationship with their participants. This section begins by offering insight into the rapport building process, before presenting athletes' psychological needs identified through a collaboration with athletes, their parents, and the coach. The section is framed using the themes that emerged from the data analysis of the pre-intervention phase:

building rapport and *athletes' psychological needs – focus and emotional control.* Each theme is presented below and quotes and field notes used to illustrate participants' experiences.

Building rapport. It was important that the first author established an authentic relationship with participants to gain an understanding of athletes' psychological needs. As the following field notes outline, it took several months to establish the desired rapport with athletes:

> On my first day, the coach introduced me to the athletes as 'a former high level tennis player, who still plays good tennis, and has a bunch of coaching experience. She also does sport psychology, which makes her like a helper for our minds. This means that she can perhaps help us to improve your performances, wherefore she will assist me with our training for a while. Be nice to her'. Nevertheless, the athletes commonly come in and shout 'Hi coach', chat to him about all sorts, and eventually go 'Thanks coach, bye', while I am stood right next to him, with a big smile on my face, still getting no recognition. When the coach tells the athletes to chat to me, they sit as far as possible away from me and go bright red. Will they ever "be nice to me"? *(Field note 10-06-2015)*
>
> Finally! Today I am feeling very accepted by the group. The players are starting to talk to me in a relaxed manner, make jokes (occasionally on my cost), offer more than one word answers, sit with me without the coach having to tell them to do so, and even shouted 'Thanks [researchers name], see you tomorrow' after today's session. They are finally starting to accept me! *(Field note 16-09-2015)*

Only after athletes' initial shyness was overcome, was the researcher able to get to know the athletes through increasingly authentic conversations and observations:

> The athletes are really opening up to me now. I am learning something new about them each day, such as what they do in their free time, who their friends are, why they are playing tennis, what is going on in school, etc. *(Field note 08-10-2015)*

In addition to spending considerable time in participants' environment by attending training sessions, competitions, and social events, it is believed that the researcher's background, personality, educational and immersive research approach enhanced her acceptance among the athletes and coach. For instance, being able to hit with the athletes and talk about her past experiences as well as current tennis events, was reported to have fostered an authentic relationship between the athletes and researcher:

> The boys talk a lot about you. They are very impressed by your background. You played competitively, coached in America and played for the University's first team. All stuff my boys are dreaming of doing. You are good role model and inspire them. (Stephen, P8)

Finally, the coach reported a strong liking of the researcher's immersive and educational approach:

> I know you haven't really started to properly teach us stuff yet, but you have helped me a lot already over the past three months. You are really good at teaching people stuff without them really noticing. You are not patronising or telling me what to do. So far, I have never once felt undermined by you. You do it really subtle and step by step. You make suggestions but you don't tell me. You put ideas in my head and I then think I have come up with these ideas myself. It's really good, especially for big egos like mine. You did not come in being like 'I know so much and you don't', not at all. You are very personal and friendly. I am excited for the rest of our time together.

In sum, these findings outline that the researcher's personality and background perhaps accelerated the establishment of rapport between herself, the athletes, and coach.

Athletes' psychological needs – focus and emotional control. Interview data revealed that parents and the coach were aware of the important role PSCs played during youth athletes' development. John (P_5) explained: "I think to fulfil your potential in any given field of life, but particularly in sport, you need to manage the mental process as well as the physical ones." The coach reinforced this point: "They all hit well at the top level, it comes down to having the mental capacity to succeed." Together, participants deemed a host of PSCs as fundamental for athletes' positive development: "It is stuff like motivation, hard-work, being confident and focused, bouncing back from failure, staying positive by having positive imagery and self-talk." (Leanne, P_{15}). Nevertheless, a combination of observational data and interviews revealed that athletes struggled in particular with their focus and emotional control: "Staying focused is a real problem for him. Sometimes he is ahead 4-1 and then gives it away because he is not with it." (Michael, P_{10}). Similarly, Jeremy (P_{12}) reported: "He loses it sometimes, gets angry, throws his racket. Can't control his emotions. He loses matches because of that, even if he is the better player." Observations and informal conversations with the athletes aligned with these reports:

> Freddie (A1) is really not with it today. He is sitting on his racket, not offering balls to his opponents, chatting to his buddy Tom (A1) who is playing on another court, and making easy mistakes. He appears bored; when this happens his focus always vanishes. *(Field note, 18-11-2015)*

> Andy (A2) played incredible today. He was 5:2 up against the player regarded the best of the group. He served for the win, but double faulted twice. He got so worked up about it that he lost the set 5:7. He marched over to my bench and said: "I ALWAYS do this! I am playing out of this world, then, instead of

> concentrating on the next point, I start thinking about winning and completely lose focus. Then I make stupid mistakes and get so angry with myself that nothing works anymore." *(Field note 03-12-2015)*

Mark (P_7) and Jessica (P_6) explained that the loss of focus and emotional control was significantly influenced by their children's perceptions of success and failure:

> There are often tears after or even during a match when my son is about to lose. Even if he is playing really well. Then he loses his focus, gets upset. He doesn't seem to understand that it is not always about winning. (Mark, P_7)

> I caught Tom lying about who he had beaten at tennis. We had a big discussion about it. Turns out that he thought that if he wins I would love him more. I just said 'For goodness sake, I love you if you lose everything! [participant cries] All I want is for you to be happy. I could not love you any more or less.' He really did for a while think that it mattered to me if he won. (Jessica, P_6)

Despite the loss of focus and emotional control being a common issue, parents and the coach felt ill equipped to help athletes regulate these psychological characteristics:

> After repeatedly shouting 'focus focus' at the athletes, the coach turned around to me and said 'All I really do is tell them to focus. But if I just tell them to focus, it is very hollow, nothing much behind what I am actually saying. The information I am giving to them should be deeper. I am not actually telling them how to focus or refocus. I should be giving them strategies that help them to do it. But I just don't know these.' *(Field note, 25-11-2015)*

Parents experienced similar feelings, as evidenced by the following quotes:

> I'm hoping to go away from this [interview] with a better understanding of how to better coach my 8-year-old son with the stress and strain of playing tennis. So

> far I have found it very stressful and he has found it stressful. I would like to help him control his emotions, but I don't feel like I can. I don't feel like I have enough knowledge to really help him through that time. (John, P_5)
>
> My son is prone to looking at all the things that have gone wrong rather than concentrating on the things that have gone well. I have talked to him about it. Said that it is not good and that he should stay positive instead. But that's all I can really do. Talk to him about it. I can't teach him strategies that would make it easier. I don't know them. I can just share my experience with him. (Maria, P_9)

It is possible that the cause of these feelings was a perceived lack of education and training that taught parents how to support athletes' psychological development. Along the same line, the coach explained: "Coach education workshops don't really teach you how to teach kids to control their emotions. They touch on it, maybe talk about it, but don't show you how to do it. And the parents, they don't get any education on this kind of stuff." Participants therefore believed that it was the responsibility of "someone more qualified" (Kaitlin, P_{11}) to develop athletes' PSCs.

Taking all information into consideration, a MST program was designed to strengthen athletes' focus and emotional control. All of the athletes were exposed to the same workshops despite their age differences. During the workshops, younger athletes were 'buddied' with older athletes to support each other's learning.

Intervention Phase: A Mental Skills Training Program for Youth Tennis Players

The MST program consisted of three interactive classroom and on-court workshops. These were delivered at three different time points over a two-month period to all 11 athletes and their coach. A deliberate decision was made to deliver the workshops to all athletes at the same time despite their age differences. First, athletes frequently trained together as their tennis skills

were similar. Second, none of the athletes had a prior understanding of sport psychology. Finally, the positive interrelationship between the groups was used to avoid potential insecurities about spelling and grammar in the younger athletes. To do so a "buddy system" was established in which younger athletes were paired with older athletes to provide support during the workshops if needed. Each workshop was divided into 1.5 hours of classroom-based education (see Table 1 for a detailed overview), a 30-minute lunch break, and 2 hours of on-court tennis specific mental skills drills. The first two classroom sessions consisted of the first author educating the athletes and their coach about the psychological characteristics focus and emotional control. In addition, athletes' knowledge of psychological skills that regulate or facilitate athletes' ability to focus and control their emotions (i.e., self-talk, imagery, and performance routines) was strengthened. The final classroom session addressed athletes' perceptions of success and failure and offered athletes an additional opportunity to reflect upon and practice their psychological skills self-talk and performance routines. Complex psychological topics were explained through the use of pictures, stories, videos, and terminology athletes were familiar with. For instance, images of spotlight beams were used to explain the difference between internal and external focus. Moreover, clips of athletes' favourite tennis players or films, such as "Kicking and Screaming", were shown to outline good and bad examples of maintaining and regaining focus. Athletes were actively engaged in individual or group tasks such as discussions, workbook tasks, or case-study activities after every 5-10 minutes of content delivery. For example, one of the workbook tasks required athletes to identify factors that commonly distracted them, as well as those that helped them regain or maintain focus. These strategies were shared and discussed with the group and practiced after lunch, when the coach and first author engaged athletes in tennis specific mental skills drills that were informed by Lauer, Gould, Lubbers, and Kovacs' (2010) handbook. The researcher used this book to identify drills that tested athletes' ability to focus and control their

emotions and aligned with the psychological skills that had been taught prior to the on-court sessions.

Evaluation Phase: What and How Did Athletes Learn?

This section presents what and how athletes learned about the PSCs targeted in the MST program. Data was collected through a semi-structured interview with the coach and post-intervention observations that were conducted over a four-month period and included informal chats with athletes, their parents, and the coach. The section is framed using the themes that emerged from the data analysis of the evaluation phase. In relation to what athletes learned, these themes are: an *enhanced understanding of psychological skills and characteristics*, an *increased use of psychological skills,* and the development of *a shared subject specific language*. In terms of how athletes learned, information can be found in the theme called *the importance of the pre-intervention phase.* All four themes are explained below and data illustrated for each theme.

An enhanced understanding of psychological skills and characteristics. Athletes reported that the program enhanced their understanding of focus and emotional control. More specifically, they explained that prior to the MST program they were unaware that they could control their emotions and focus:

> I knew that getting angry during games wasn't good. My coach and parents tell me all the time to 'stop getting in a mood'. I tried, but it never really worked. I didn't really feel like I could control it. But your talks showed me that I can control it, I just need to practice your tips and eventually I will get it. (Josh, A2, *Field note 12-05-2016*)

Additionally, Nick (A2) explained:

> I have always talked to myself during games and sometimes training, but I never knew that others do that too and that bad self-talk is bad for my focus. Because

> when I get angry and use bad self-talk, I don't focus on my tennis, I focus on the things that make me angry. *(Field note 12-05-2016)*

Similarly, Dave (A2) stated:

> I have been doing a serve routine my whole life. My coach and dad told me to do it. But I didn't know that it was **that** important, that it helps me to focus so that I get more serves in. *(Field note 12-05-2016)*

Athletes further reinforced this point by reporting that, prior to the workshops, they did not know that the behaviours they so frequently engaged in, such as self-talk or imagery, "were psychological things" (Gary, A2, *Field note 27-04-2016*) that influenced their focus and emotional control. A cause for this lack of understanding could be that athletes' immediate others, such as their coach and parents, also possessed a limited understanding of psychological skills. The coach explained:

> Until you arrived I didn't think that it [(pre-) performance routine] was a psychological skill. I did it to help them [the athletes] improve their technique because I noticed that they rushed. So performance routines were technically based in my eyes, now I realize that they actually help the athletes to focus.

Athletes' newly gained understanding about PSCs appeared to enhance their ability and willingness to regulate their psychological characteristics more consistently:

> I noticed that athletes engage much more frequently in their serve routines now. When asking Andy (A2) why this was the case, he replied 'After your talks, I realized that the serve routine really helps me to focus and block everything else out before I serve. So now, I just focus on the ball and my dribbling. Nothing else. It makes a real difference to my serve. *(Field note 25-05-2016)*

An increased use of psychological skills. Athletes' use of psychological skills increased as a result of athletes' enhanced understanding of PSCs. Tom (A1) stated: "I now know that I can control my mind with some of the tricks we learned, like talking to myself positively. I now try to say good things in my head rather than bad things that upset me" (*Field note 11-05-2016*). Similarly, Andy (A2) explained:

> Instead of doing my serve routine sometimes, I now do it all the time. I now know why I should be doing it and that it is important for the consistency of my serve. I was told to do it before and have seen world-ranked players do it too, so it was just something I did without really thinking about it. Now I know that it makes me better, so I want to do it more often. (*Field note 25-05-2016)*

Athletes increased use of psychological skills was also noticed by the coach:

> It is like they [the athletes] are transformed. Before the workshops, especially with the younger ones, I had to walk around and say 'remember your serve routines, remember your serve routines'. I had to remind them all the time. And now, every single one of them is doing it every single time!

In addition, parents reported that athletes transferred their use of psychological skills from training into tournament situations, Stephen (P_8) reported:

> Freddie (A1), my younger one, he is definitely a bit more focused when we go to tournaments now. He double-faults less. I think it's because he finally engages in his serve routine consistently. I have been telling him for years, but I think it took the workshops for him to understand why I want him to do it. And my older one, less jabbering, much more fist pumps and positive chat. He still has a long way to go, but I can see him getting there. His attitude is better.

The development of a shared subject specific language. Finally, it was observed and reported that the MST program facilitated a shared subject specific language between the athletes and their coach. This helped the individuals to communicate more effectively with each other:

> Another good thing is that you have created a shared language between us. You helped to expand my vocabulary, but also the one of the athletes. I used to tell the kids before they went off to play points to work hard, because I knew they understood what I meant with that. But I never gave more detailed information. Now I don't just tell them to work hard, but also to focus, use their routines, and shut off their negative self-talk. It makes a massive difference. (Coach)

Moreover, athletes reported to talk more openly about psychological skills since engaging in the program. Andy (A2) explained: "I sometimes struggle to stay positive, so I asked Dave (A2) what he tells himself because he is always so positive. That helped me to make my negative thoughts more positive" (*Field note 09-06-2016*). The increased communication about psychological skills was also noticed in the younger athletes as this field note exemplifies:

> The athletes practiced doubles today. After Will (A1) double faulted for the second time, his doubles partner Freddie (A1) turned around from the net and said 'Come on Will, try to use your imagery before you serve again. That will help you to get it in. I do it all the time.' *(Field note 19-05-2016)*

Taken together, the findings suggest that the MST program triggered several positive outcomes for the youth athletes, including an enhanced understanding and use of PSCs, as well as a shared subject specific language. In addition, athletes reported enjoying the MST program despite smaller issues, such as a dislike for having to handwrite information into the program workbooks. Additional qualitative data was collected to identify how these positive outcomes were able to be elicited. The results are presented in the following section.

The importance of the pre-intervention phase. Participants consistently outlined that the pre-intervention phase allowed for the establishment of rapport and, subsequently, meaningful content and delivery mediums. More specifically, investing the time to get to know athletes and their coach prior to the commencement of the MST program was perceived as a fundamental asset of the program's success. The coach reflected: "Wasn't it funny how quiet and red the boys went when you first started here and now they won't shut up and ask a million times where you are when you are not here." After overcoming athletes' initial shyness, the researcher was able to get to know the athletes and develop a foundation that would inform the MST program. The coach stated: "It really paid off that you stuck with us for so long, you are like part of the team now, and that's why we liked listening to you and why the boys got as involved [in the program] as they did."

In addition, listening to and observing the athletes, their coach and parents over a prolonged period of time allowed the researcher to develop meaningful content and delivery mediums. In particular, the researcher was able to learn about athletes' interests, such as their favourite players, and explore their understanding of sport psychology:

> My biggest worry was you have Jordan who is 8 years old and Andy who is 15, and would Jordan even ever know what all these words are? But the way you explained it, they could all do it and relate to it, cos you used examples from when you were here with us. (Coach)

Piper (P_1), the mother of the youngest athlete, agreed with this contention:

> From what he said, I got the impression that he could relate to what you were saying because he has felt it. Those issues you discussed, he had experienced them and hadn't quite known how to deal with them, so what he could do was

568 thinking ‘Oh yeah, I have been there’. Which is good, cos that made him realize
569 that such feelings are normal and showed him that you can manage them.

570 In addition to being able to relate to the program, athletes stated that “the workshops were really
571 good fun. I liked all the photos and the videos you showed us of our favourite players” (Tom,
572 A1, *Field note 10-02-2016*).

573 Finally, the coach and athletes perceived that the workshops were “pitched at the right
574 level” (coach), because “you used words we knew, and taught us about stuff we were already
575 doing, but actually explained them” (Andy, A2, *Field note 10-02-2016*). Together, it appears
576 that the time spent in the researched environment prior to the intervention allowed the
577 researcher to learn and adapt to athletes’ jargon and build upon already existing knowledge and
578 behaviours.

579 **Discussion**

580 The purpose of the present study was to develop, implement, and evaluate a MST
581 program for elite youth tennis players that was informed by athletes’ psychological needs and
582 personal interests. Results indicated that the program successfully taught athletes about focus and
583 emotional control, as well as psychological skills that helped athletes to regulate these
584 characteristics. Consequently, the findings correspond to previous MST programs for youth
585 athletes that also found the benefits of equipping youth athletes with PSCs to deal with the
586 challenges and stressors of elite sport (e.g., Fortes et al., 2018; Sharp et al., 2013). Nevertheless,
587 the steps taken to develop, implement, and evaluate the current MST program were unique and
588 extend the literature in several ways.

589 The current MST program was informed by critical realism and action research
590 principles, placing significant importance on the researcher’s prolonged immersion in the
591 intervention setting to allow for an enriched assessment of athletes’ needs and interests, the

development of rapport, and an in-depth understanding of the environment in which athletes were embedded (McNiff, 2013; Pawson & Tilley, 1997). Although action research is widely used in education- and health-related fields (e.g., Campbell & Filimon, 2018; Lenthall et al., 2018) and experts have outlined the value of researchers' prolonged immersion in intervention settings (e.g., Henriksen et al., 2014; Visek et al., 2009), research investigating youth athletes' psychological development has been much slower to implement its guiding principles. A common reason for the lack of researchers' prolonged immersion appears to be the limited time they are afforded in these settings prior to the implementation of MST programs (Harwood & Steptoe, 2013). Experts suggested that this may be due to the stigma that sport psychology services can "quick fix" athletes' problems (MacNamara & Collins, 2013; Pain & Harwood, 2004). This is unfortunate since many researchers have advocated that youth athletes' psychological development should be personalized, proactive, and embedded systematically into athletes' everyday practices (e.g., Côté et al., 2010; MacNamara et al., 2010). To follow these guidelines, it is essential that researchers establish an in-depth familiarization with athletes' personalities, habits, needs, and interests, as well as the setting in which the MST program is to take place (e.g., Gardner & Moore, 2005; Henriksen et al., 2014). In line with these objectives, the lead researcher of the current study spent nine months in the researched youth sport setting prior to the creation of the MST program. Spending this significant amount of time at the tennis club allowed the researcher to establish rapport with all participants to a degree that she was considered part of the environment. In addition to the considerable time spent at the club, it is believed that the researcher's personality, background, and educational approach accelerated the rapport building process. For instance, it was reported that the researcher's hands-on involvement in training sessions fostered athletes' acceptance of her and that her understanding of competitive youth tennis enhanced the relevance of examples used during the MST program.

In addition to placing significant importance on the researcher's prolonged immersion in the intervention setting, results showed that athletes' use and regulation of PSCs improved after the MST program. For instance, athletes consistently engaged in serve routines and consciously replaced their negative with positive self-talk following the MST. To understand athletes' change in behaviour, it is possible to refer to Michie, Stralen, and West's (2011) COM-B model. The model consists of four components, including behaviours, capability, opportunity, and motivation, and recognizes that the latter three components shape individuals' intention to engage in behaviours. Consequently, for behaviour change to occur, one or more of the three components need to be manipulated. Specifically, the motivation to engage in a behaviour is said to increase if individuals have the opportunity (i.e., factors that lie outside of individuals' control that make the behaviour possible or prompt it) and capability (i.e., individuals' psychological and physical capacity to engage in an activity, including having the necessary knowledge and skills) to engage in the behaviour. This supports the interpretation of the current results, outlining that youth athletes' motivation to use and regulate PSCs consistently can indeed increase as a cause of athletes' enhanced understanding of PSCs. Although this finding is in line with various youth sport development frameworks such as the Mastery Approach to Coaching (Smith & Smoll, 2002), Positive Youth Development in Sport (Côté, et al., 2010), and the Life Skills Promotion Model (Gould & Carson, 2008), the COM-B Model has received little attention in the youth athlete developmental literature. Based on the current findings, it appears that the theory can be applied to the youth sport context and supports the notion that athletes should be offered explicit opportunities, such as education, modelling, and training, to develop the necessary capabilities, to be increasingly motivated and able to regulate their focus and emotions. While the present study was not designed to measure athletes' capability to use PSCs or evaluate the opportunities they are afforded to develop and practice PSCs before and after the MST program, it would be

interesting for future research to investigate the usefulness of behaviour change theories to increase youth athletes' effective use of PSCs.

The COM-B model can also be used to explain parents and the coach's calls for more accessible and appropriate educational opportunities designed to educate them about youth athletes' effective psychological development. Specifically, participants reported that their motivation and confidence to support youth athletes' psychological development would increase if their capability to do so was fostered. While the present study was not designed to delve deeper into the educational needs of parents and coaches, future research should aim to work collaboratively with these individuals to ensure that the delivery of educational opportunities is appropriately adapted to the ever-evolving needs of this audience (Gould, 2016). It is appreciated that this idea does not come without challenges. Specifically, when looking at the provision of educational opportunities from a broader or policy perspective, it is worth noting that a discrepancy between regulations reinforced by some sport organizations and recommendations made within the youth sport literature can exist (cf. Pankhurst, Collins, & MacNamara, 2012). This might hinder or decelerate the appropriate education of athletes, parents, and coaches (Gould, 2016). Subsequently, more efforts are required that foster a dedicated and mutually beneficial collaboration between researchers, sport psychology practitioners, and sport organizations that has the potential to enhance the likelihood of positive youth development in the real world. To achieve such collaboration, researchers are encouraged to shift their focus from sole knowledge acquisition to a combination of knowledge acquisition, transfer, and dissemination (Gould, 2016).

Finally, after developing athletes and the coach's capability to use subject specific terminology, participants reported feeling more confident to talk openly, frequently, and explicitly about PSCs. Previous research by Richards, Collins, and Mascarenhas (2012) gleaned

similar results when exploring the complexity of decision-making in elite netball. Their findings outlined that athletes' feelings of connectivity and relatedness increased after clarifying the language that players and coaches used throughout training and competitions. Together, this is an important lesson for future youth athlete and coach interventions, as it outlines the importance of clarifying context specific vocabulary to facilitate effective communication with and between participants. It would be premature to assume that the facilitation of a shared subject specific language normalized the use of PSCs within the researched environment, yet future research should explore this contention.

Limitations and Future Research Directions

Although the present study offered some practical results, limitations need to be considered. First, the MST program was informed and evaluated solely through qualitative research methods, which limits the generalizability of the results. In addition, no performance data was collected that could provide further indication about the success of the intervention. To benefit from the advantages of both qualitative and quantitative research methods, future research should consider adopting a mixed method approach. Second, all participants took part in a MST program that was informed by a nine-month pre-intervention phase. Therefore, it is not possible to identify if similar results could have been achieved through a shorter or even longer pre-intervention phase. Finally, while parents informed the current MST program, they did not partake in the program to learn about PSCs themselves. To further the long-term positive effects of youth athletes' MST programs, future interventions should aim to offer educational programs to coaches and parents that complement athletes' MST programs (Henriksen et al., 2014).

Conclusion

The present study is among the first to implement a longitudinal action research study that aimed to develop, implement, and evaluate a MST program informed by youth athletes'

needs and interests. Results outlined the benefits of researchers' prolonged immersion in the intervention setting, allowing for the development of authentic relationships with athletes and their supportive others prior to the development and implementation of a MST program. More specifically, the results showed that athletes' regulation of the psychological characteristics of focus and emotional control improved due to athletes' enhanced understanding of and ability to use psychological skills, such as positive self-talk and serve routines. Overall, this supports the notion that youth athletes should be offered explicit educational opportunities to develop the necessary capabilities to regulate psychological characteristics early on in their development. Practical guidelines for future sport psychology interventions with youth athletes and their supportive others are provided with the ultimate goal of enhancing athletes' chances of fulfilling their athletic and personal potential.

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Table 1

Classroom based Sport Psychology Education Program

Workshop Number & Name	Workshop Content	Min.
Workshop # 1: Improving your Focus	1. Introduction to focus 2. **Task 1:** Identify critical moments in tennis. **Task 2:** Identify the cues that one should focus on in these situations. **Task 3:** Identify reasons for losing focus. **Break** 3. Introduction to learning to achieve, maintain and gain back focus <u>Teaching of psychological skills & tasks:</u> • (Pre-) Performance Routine • Concentration Cues • Error Parking	10 25 ↓ 5 5 25 10 10
Workshop # 2: Learning to control your emotions	1. Introduction to emotional control 2. **Task 1:** Is emotional control something that positively or negative impacts on our performance? **Task 2:** Identify your ideal set and level of emotion that makes your performance great. **Task 3:** Identify where your emotions come from. **Break** 3. Introduction to learning how to control your emotions <u>Teaching of psychological skills & tasks:</u> • Self-Talk • Imagery	10 25 ↓ 5 5 25 20
Workshop # 3: What does success and failure mean to you?	1. Introduction to winning and losing 2. **Task 1:** What do the words success and failure mean to you? **Task 2:** Identify forms of success. **Break** 3. Introduction to learning how to accept mistakes and fear <u>Teaching of psychological skills & tasks:</u> • Self-Talk • Performance Routines 4. **Task 3:** Developing a philosophy of success for players at the Academy	10 10 10 5 5 15 15 30